Claims

Claim 1:
Polyelectrolytes that are obtainable by polymerization of monomers of (meth)acrylamide, a quaternized (meth)acrylamide derivative, a (meth)acrylic acid derivative and/or hydrolysis-stable cationic monomers, the composition of the polyelectrolyte being characterized by a toxicity index

$$F_i = (Q_{TP} - 2Q_{ME})/10 \leq 1$$

where
Q_{TP} = total cationic charge of the polymer
Q_{ME} = charge proportion of the ester-type monomer.

Claim 2:
Polyelectrolytes according to claim 1, characterized in that they have a total charge of 1 to 99 mol%.

Claim 3:
Polyelectrolytes according to claims 1 to 2, characterized in that the terpolymers have a solution viscosity of 10 to 2000 mPas.

Claim 4:
Polyelectrolytes according to claims 1 to 3, characterized in that the quaternized acrylamide derivative is 3-dimethylammoniumpropyl(meth)acrylamide quaternized with methyl chloride (DIMAPA-Quat).

Claim 5:
Polyelectrolytes according to claims 1 to 4, characterized in that the quaternized acrylamide derivative is 2-dimethylammoniumethyl(meth)acrylate quaternized with methyl chloride (ADAME-Quat).

Claim 6:
Polyelectrolytes according to claims 1 to 5, characterized in that the terpolymers contain 0.1 to 20 wt% of a highly cationic, low molecular weight polyelectrolyte.

Claim 7:
Polyelectrolytes according to claims 1 to 6, characterized in that they are terpolymers that are obtainable by polymerization of monomers of (meth)acrylamide, a quaternized (meth)acrylamide derivative and a (meth)acrylic acid derivative, and/or hydrolysis-stable cationic monomers.

Claim 8:
Polyelectrolytes according to claims 1 to 7, characterized in that the polymers are synthesized by the gel polymerization method.

Claim 9:
Polyelectrolytes according to claims 1 to 7, characterized in that the polymers are synthesized by the emulsion polymerization method.

Claim 10:
Polyelectrolytes according to claims 1 to 7, characterized in that the polymers are synthesized by the suspension polymerization method.

Claim 11:
The use of polyelectrolytes according to claims 1 to 10 for dewatering of sewage sludges.

Claim 12:
The use of polyelectrolytes according to claims 1 to 10 for purification of waste water or conditioning of potable water.

Claim 13:

The use of polyelectrolytes according to claims 1 to 10 for manufacture of paper or cardboard.

Claim 14:

Water-in-water polymer dispersions, characterized in that they contain polyelectrolytes according to claims 1 to 10.